WORKING FOR CLEAN WATER

2008 WATERSHED IMPROVEMENT SUCCESSES IN IOWA

Paddling the Raccoon River, Clay Smith

Working for clean water

2008 watershed improvement successes in Iowa

We all live in a watershed, an area of land that drains to a lake or stream. What we do on that land — whether a backyard, farm or factory site — affects the health of our lakes, streams and rivers.

When water runs off the land, it can carry pollutants with it – this is called "nonpoint pollution." For example, motor oil can wash off our driveways and into storm sewers, which dump directly to a lake or stream. Rainfall can send loads of exposed soil from fields and bare ground into our waterways. That soil – and the nutrients and bacteria that can attach to it – is the biggest water quality issue in Iowa. If we don't make changes to the way we manage the land to keep soil, nutrients and other materials where they should be, they'll end up in our water.

The DNR works with other state and federal agencies to help Iowans organize and plan local watershed improvement efforts, providing technical know-how, planning guidance and financial assistance. Watershed coordinators work one-on-one with landowners, homeowners and volunteers to improve the quality of water entering our lakes, streams and rivers. Through organized projects, landowners often have access to better funding assistance to make improvements on their property. That funding can make it easier to put in place conservation practices, which are farming and land management practices that help keep soil on the land and pollutants out of our water.

While the Watershed Improvement Program heads up these watershed projects for the DNR, projects are a collaborative effort with many DNR programs and other partners. Fisheries staff do in-stream work, that together with improved water quality, helps fish and aquatic life thrive. Wildlife staff work with landowners to install buffer strips and other vegetation that provide habitat for pheasant, turkey and other wildlife while protecting streams. Our foresters help Iowans plant trees to stabilize streambanks. Our geologists, water monitors and water quality staff help identify problems and offer solutions. The DNR also works with a number of partners, such as the **Iowa Department of Agriculture and Land Stewardship - Division of Soil Conservation (IDALS-DSC), the USDA Natural Resources Conservation Service (USDA-NRCS) and Iowa soil and water conservation districts.**

Muchakinock Creek, Mahaska County, Clay Smith

The Section 319 program of the U.S. Environmental Protection Agency provides the DNR Watershed Improvement Program funding for nonpoint pollution programs. The DNR then generally funds local watershed projects in cooperation with other DNR programs, IDALS, USDA-NRCS and local soil and water conservation districts.

Partner group initials used in this booklet:

County Conservation Board (CCB) ◆ Iowa Department of Agriculture and Land Stewardship (IDALS) - Division of Soil Conservation (DSC) ◆ Iowa Department of Natural Resources (DNR) ◆ Iowa Department of Transportation (DOT) ◆ Iowa State University (ISU) ◆ Soil and Water Conservation District (SWCD) ◆ U.S. Department of Agriculture (USDA) ◆ USDA Farm Services Agency (FSA) ◆ USDA Natural Resources Conservation Service (USDA-NRCS) ◆ USDA Resource Conservation and Development (RC&D) ◆ U.S. Environmental Protection Agency (EPA) ◆ Watershed Improvement Review Board (WIRB)

Viking Lake, Montgomery County, Clay Smith

From the Director

In 2008, Iowans kept going strong in their efforts to improve our rivers, lakes and streams. In the stories we've collected in this booklet, the data show cleaner water, but the fruits of Iowans' labor are evident beyond those numbers. The proof in these areas is cleaner drinking water and better water for swimming, fishing and boating that can translate into increased tourism and dollars for local communities.

Further, Iowans recognize not only the need for cleaner water, but that planning is an integral part of making an impact. Coming together with their neighbors, they're forming local groups devoted to locating problem areas and finding solutions. Working with the DNR and other organizations, Iowans are encouraged to create long-term, comprehensive plans for making changes in their water. With a watershed management plan in place, local groups can move forward with targeting their efforts in the areas that need the most help and can make the largest impact on water quality. Because river, stream and lake basins – or watersheds – don't follow fences, Iowans are coming together across farm fields and county lines to make a difference.

The DNR continues to add new ways to help Iowans reach their water quality goals. Whether it's assessing a watershed for problems or helping create a watershed management plan, DNR staff can help you build a successful strategy. Our watershed improvement, fisheries, wildlife, forestry and water quality staff – along with numerous other DNR staff – can contribute to your local project. We have the expertise, technology and know-how to help Iowans achieve their water quality goals.

Water quality improvements don't happen overnight, but with Iowans' hard work, we're making progress. The following success stories show that community-driven watershed improvement projects that partner with the DNR and other organizations can reap a myriad of rewards. I'm confident that Iowans will continue to build on these examples to create their own water quality success story. Clean water starts at the local level, and the DNR can help you create better water for your community.

Richard Leopold
DNR Director

Little Sioux River, Clay Smith

Riparian areas defend our waters

They're the last line of defense for Iowa's streams, rivers and lakes – that's why Iowans are protecting riparian areas.

A vegetated area between agricultural or developed land and a waterbody, a riparian area acts as a barrier against pollutants. It helps reduce flood damage and the effects of pollution washing in from the landscape, stabilizes streambanks to decrease erosion, and offers food and shelter for wildlife. "A riparian area is an all-inclusive thing in terms of benefits," said Tom Wilton, DNR environmental specialist.

Willow Creek, Worth County, DNR photo

Iowa landowners reap these benefits by using conservation practices to restore and preserve riparian areas. Richard Risbeck, of Chariton, spent more than 10 years working on his Wolfe Creek property to improve water quality. An avid hunter, he explained, "It was important to do because I wanted to create a nice hunting environment for myself and for my three sons that hadn't been there before."

He purchased the 303-acre farm in 1989 after retiring, and immediately enlisted the DNR's help to plant six acres of trees and create a wetland. In 1994, with the help of the DNR and Pheasants Forever, he restored 23 acres around the creek, as well as another four acres in 2004. Risbeck has planted seven acres of trees and three acres of wildflowers, developed nine acres of wetland, and installed 20.5 acres of riparian buffers along Wolfe Creek since purchasing the farm.

Today, the results of his hard work show. "The amount of wildlife increased, especially deer and turkey. The fish population is really growing and I've even seen otters in the creek now that water quality is so good. It's running clear like a mountain stream because of the work we put in," he said.

Riparian buffers include grass, shrubs and trees to help filter pollutants from runoff. Other conservation practices can strengthen riparian areas, like structures that reshape and support streambanks to prevent them from collapsing. Grassed waterways, another practice, allow surface water to flow across farmland with minimal soil erosion.

Jeff Becker, a Muscatine landowner, also benefits from having riparian areas around his Pike Run property. According to Becker, placing grass strips in fields and along streambanks, and prohibiting pesticide spray near the stream have significantly improved water quality since he purchased the land in 1999. "It's important to do this kind of work because I personally believe this is God's land, not ours. Take care of it the way it should be taken care of and it'll reward you in many ways."

Project partners:

Iowa DNR
IDALS-DSC
USDA-NRCS
SWCDs
Pheasants Forever
The Nature Conservancy

Fishing Twelve Mile Lake, Clay Smith

Anglers drive for Twelve Mile catch

During its peak in the late 1990s, Twelve Mile Lake, near Creston, held nearly 30 fishing tournaments each year. By 2004, that number dropped to a mere two.

"We used to count the number of boats in the parking lot over at Three Mile Lake and compare their number with ours," said DNR Fisheries Biologist Gary Sobotka. "We were at an eight-to-one ratio of boats at Three Mile versus Twelve Mile."

Just a mile and a half apart, the traveling distance to Twelve Mile wasn't the issue. Over the past decade, an overpopulation of common carp stirred up sediment, turning Twelve Mile's formerly clear water into a murky brown. The water was unappealing and fewer people came to visit the lake. Drinking water pulled from the lake required more chemicals for treatment.

Twelve Mile Lake, Clay Smith

"It got to the point where Creston started drawing water from Three Mile Lake because it was less expensive to treat. It was obvious the lake had a problem," said Twelve Mile Lake Watershed Project Coordinator and USDA-NRCS District Conservationist Paul Goldsmith.

Work to repair the lake began in 2005, partially draining the water and deepening more than 1,000 feet of shoreline to roughly 30 inches deep. Rocks (rip rap) placed almost entirely around the perimeter of the lake stabilized the shoreline. Terraces, buffers and structures placed in the watershed years before would help protect the restoration work. The DNR restocked fish in 2005 and continued to add more species into the lake until 2007.

Today, the renovation results show. Twelve Mile now contains the same fish species it did before the common carp invasion. Rooted vegetation, something carp disturbed, is slowly reappearing. The addition of rooted plants reduces nutrients in the lake, suppresses wave action, and provides food for fish and insects. By 2006, water clarity reached 9 feet and anglers returned to their former fishing haven. It's been three years since DNR fisheries staff spotted common carp in the lake.

If a low fishing tournament count in the past was an indication of the lake's demise, a recent boost in numbers should ensure its longevity. According to Sobotka, as many as 24 tournaments were scheduled in 2008, and he hopes to have 30 for 2009. "We're starting a period of going back to the glory days," he said. "Angler use is back in full swing again and I see it staying that way for a long time."

Project partners:

Iowa DNR
IDALS-DSC
USDA-NRCS
City of Creston Water Works
Union CCB
Union SWCD

Upper Catfish Creek, Clay Smith

Coming together for Catfish Creek

The urban development surrounding Upper Catfish Creek had taken its toll. Newly-paved sidewalks and streets provided an easy route for sediment and pollution to run off into the coldwater stream. Excess runoff sped up erosion in the stream and raised water temperature, threatening naturally reproducing trout and other aquatic life.

The answer for watershed project coordinator Eric Schmechel was to join with a diverse crowd of local partners. With the City of Dubuque, Dubuque County, the Dubuque County Conservation Board, the Sierra Club and Audubon Society, Schmechel developed a plan of attack to prevent more pollution from harming the creek. The groups meet regularly as a watershed council. Schmechel said council enrollment has been steady since the project began in 2007, and the network of support surrounding him is just as good. "I owe a lot to the people on the council. They constantly bring new ideas to the table and really help me network and get the word out, not only with landowners but citizens across the county," he said.

IDALS technician Ron McCarthy, Watershed Coordinator Eric Schmechel and Dubuque CCB Director Brian Preston take water samples from Upper Catfish Creek. Lynn Betts, IDALS-DSC

The groups get their hands dirty, too. They monitor water quality and take part in stream cleanups, snapshot monitoring events and streambank stabilization projects. University of Dubuque environmental students monitor soil and water quality every other week in the fall. At the end of the semester, students present their results to a panel of university professors, the watershed council and the City of Dubuque.

Charles Winterwood, a member of the Dubuque Sierra Club and Audubon Society, became involved with the project in 2007. "I've learned a lot about conservation practices by being involved," he said. "Even the little things done to help the environment make a big impact over the years." The project encourages urban conservation practices, like rain gardens and permeable pavement, that reduce runoff by allowing water to soak into the soil. It also encourages agricultural landowners to use conservation practices like grassed waterways, terraces and filter strips.

"The basic model we use mimics how water naturally works in our groundwater–driven, historic landscape," said Schmechel. "We slow down stormwater and let it soak into the ground, reducing runoff into our coldwater trout stream. It's important to help planners, developers, real estate agents, contractors and homeowners learn how they can impact the creek. "

Charlie Daoud, a project partner and developer for the Dubuque company 4-All, often discusses new ideas for the project with Schmechel. "Working as a partnership might be a sacrifice to some, but at the end of the day people will see it's not only good for the development now, but for the future."

Project partners:

- Iowa DNR
- IDALS-DSC
- USDA-NRCS
- Audubon Society
- Catfish Creek Coalition
- City of Dubuque
- Dubuque County
- Dubuque CCB
- Dubuque Fly Fishers
- Dubuque SWCD
- East Central Intergovernmental Agency
- Sierra Club
- University of Dubuque

Fishing at Lake of Three Fires, Clay Smith

Three Fires becomes hidden gem

Lake of Three Fires, built in the 1930s, was never known for high water quality.
"The lake water was always bad," said Gary Sobotka, DNR fisheries biologist. "If you could see two feet down, that was lucky."

Cloudy, polluted water wasn't the only problem. Carp and other unwanted fish swarmed Lake of Three Fires, creating a lackluster experience for anglers. The lake had shrunk from 127 acres to a mere 70. Trees dominated land that once held water.


Lake of Three Fires, Clay Smith

Improving the lake would take a multipronged approach. The Lake of Three Fires watershed project assessed the watershed, discovering a host of problems. Soil loss and nutrient levels topped the list, so the project worked with landowners to reduce sediment reaching the lake and created wetlands to filter nutrients from runoff. The DNR worked with in-lake efforts, including increasing the lake's average depth by 4 feet by dredging roughly 490,000 cubic yards of sediment from the lake. That's enough soil to fill a 170-mile-long line of dump trucks from Des Moines to Davenport.

Problem carp and gizzard shad disappeared with a lake draining. Freshly stocked largemouth bass, bluegill and channel catfish now swim past new rock reefs and mounds, while anglers hook them from jetties that also battle erosion. Additional rock placed along the shoreline and new basins in the watershed reduce the amount of soil loss. In all, sediment and nutrients reaching the lake have decreased by 70 percent.

The lake's increased longevity and improved water quality are due to the combination of watershed work and in-lake renovation. Today, water clarity averages 5 to 6 feet, despite heavy spring and summer rainfall. That led to a fish population in great shape, said Sobotka. "The angler count was so bad that we didn't even used to count the numbers. Now, we have more catchable fish than what we've had the past 30 years. I would say we've had about three to four times more fishing and lake visitors than we used to have."

Bob Waters, who led the watershed project before becoming a DSC regional watershed coordinator, agreed. "It used to be called the 'Lake of Three Fish,' but now it's one of the best fisheries in southwest Iowa. The fish population is thriving, which brings more people to the park. It's a well-kept secret right now, but the word will get out soon enough. It's come such a long way from what it used to be."

Project partners:

Iowa DNR
IDALS-DSC
USDA-NRCS
Ducks Unlimited
ISU
Pheasants Forever
Taylor County
Taylor SWCD

The Lovells' prairie trail is a year-round educational and recreational resource in Clear Lake, Lowell Washburn

Lovells create a Clear Lake legacy

It's the satisfaction of hearing people talk about a newfound love of the outdoors; seeing an abundance of wildlife prosper in a new home; the excitement of witnessing an entire landscape come alive. These are just some of the joys Tom and Jan Lovell of Clear Lake feel while reflecting on the land they restored. The nearly 300-acre farm on the south side of the lake has been family-owned since 1886. "Generations of our family have wonderful memories of picnicking and exploring outside at Lone Tree Point Woods," said Tom.

Facing pressure to develop their land, the Lovells instead looked to a study that showed that restoring their land, located in a key part of Clear Lake's watershed, would significantly improve water quality by holding back soil from surrounding farmland. With this in mind, the Lovells placed a conservation easement on the property, to guarantee it would never be developed, and donated the easement in 1992 to the Iowa Natural Heritage Foundation. INHF allows them to maintain and manage the land, and the Lovells allow public access for activities like bird and wildlife watching, hiking, cross-country skiing and photography.

Tom and Jan Lovell restored prairie to protect Clear Lake. Lowell Washburn

Once the land was protected, the Lovells began restoration. USDA-NRCS and INHF assisted by selecting prairie and wetland sites and hand-clearing undesirable vegetation. According to Tom, prairie and wetland areas now filter 60 to 80 percent of nutrients and sediment from runoff before it drains into Clear Lake. "Whatever needed to be done as far as restoring wetland and wildlife habitat, they were more than willing to do. They understood the priority, and reached out in every way they could," said USDA-NRCS District Conservationist Tony Moore, who helped with the Lovells' projects.

Wanting to share their preservation success, the Lovells encouraged the development of a public biking and hiking trail through the prairie. "We figured, what a great opportunity to get bicyclists off the heavily traveled roads along the lake and have them experience everything about the land. We also wanted to teach people about the role of prairies and wetlands and how they contribute to a healthy environment," said Jan.

Although work to improve the land and watershed is never quite finished, Jan and Tom said they feel their efforts have made an impact. "The most rewarding part has been the peace of mind of knowing that this special area will always be protected," said Jan. "It's also satisfying to know this helped prevent the degradation of such an important natural resource to the area — the lake."

Project partners

CLEAR project, Clear Lake
- Iowa DNR
- IDALS-DSC
- USDA-NRCS
- Cerro Gordo, Hancock SWCDs
- City of Clear Lake

USDA-NRCS
Cerro Gordo County
Iowa Natural Heritage Foundation

Three Mile Lake, Clay Smith

Three Mile continues to shine

Three Mile Lake continues to be a step ahead of the rest due to an extensive, proactive approach. Constructed in 1995 after a drought in the late 1980s jeopardized locals' drinking water supply, its success lies in the 22,700-acre watershed. Work done in the watershed prior to the lake's construction ensured not only safe drinking water, but that visitors can still see as far as 10 to 12 feet down in the water more than a decade later.

"Three Mile was built using knowledge from the past, and was constructed with that mindset," said Gary Sobotka, DNR fisheries biologist.

Project staff and landowners put in a wealth of effort, making sure there were adequate structures in the watershed to prevent soil from reaching the then-new lake. That included 31 grade stabilization structures (18 ponds, 13 erosion control structures), 54 water control basins and more than 83,000 feet of terraces.

"The community was interested from the start, because they knew the importance of protecting the water supply and saw the economic benefits," said Paul Goldsmith, USDA-NRCS district conservationist and Three Mile Lake project coordinator.

That work has held up and paid off. The lake, which provides drinking water to seven counties, has minimal treatment problems. Maintaining Three Mile's good water quality over time has also resulted in tourism and economic growth.

According to Doug Jones, director of the Union County Conservation Board, Three Mile Lake sets the standard for the rest of Iowa. "The heavy focus on watershed improvement truly paid off. People come to the lake because of the exceptional water quality," he said. Over the last few years, the area made $100,000 more than its expected income due to the amount of cabin and recreational use at the lake, Jones added.

Three Mile Lake fishing dock, Clay Smith

Anglers are especially drawn to Three Mile. Fish growth is tremendous, as the water can support a more diverse fish population. The lake is home to largemouth bass, bluegills, crappies, muskie, walleye and channel catfish. Fishing tournaments, as well as ice fishing, have grown increasingly popular.

"People have learned a bit about nature over time, and this lake is an example of us learning how to do things better in order to benefit agriculture and the people," said Sobotka.

Project partners:

Iowa DNR
IDALS-DSC
USDA-NRCS
Adair SWCD
Adair Co. Board of Supervisors
City of Afton
Southern Iowa Rural Water Association
Union Co. Board of Supervisors
Union CCB
Union SWCD

Storm Lake lighthouse, Storm Lake Chamber of Commerce

Effort brings Storm Lake together

Not that long ago, residents took Storm Lake for granted. But once water quality deteriorated and the lake landed on Iowa's impaired waters list, it was no longer an ideal place for swimming and fishing with its cloudy, brown water. Today, residents have a renewed sense of pride for their town's namesake lake, working together to improve water clarity and create a booming destination area.

As local leaders arranged a plan of attack for the lake in 2002, residents immediately hopped on board to address the large amount of sediment in the lake.

"The project united the whole town from the start. People are extremely excited about and protective of the lake, which wasn't always the case years ago," said Gary Lalone, president of the Lake Preservation Association and chair of the Lake Improvement Commission in Storm Lake.

So far, residents of Storm Lake and Buena Vista County have raised an astounding $1.5 million in private contributions to remove sediment from the lake. They rally support for the project by holding an annual picnic, by recognizing individual landowners making significant land management changes, and by hosting field days and other demonstrations of land management practices that keep soil out of the water.

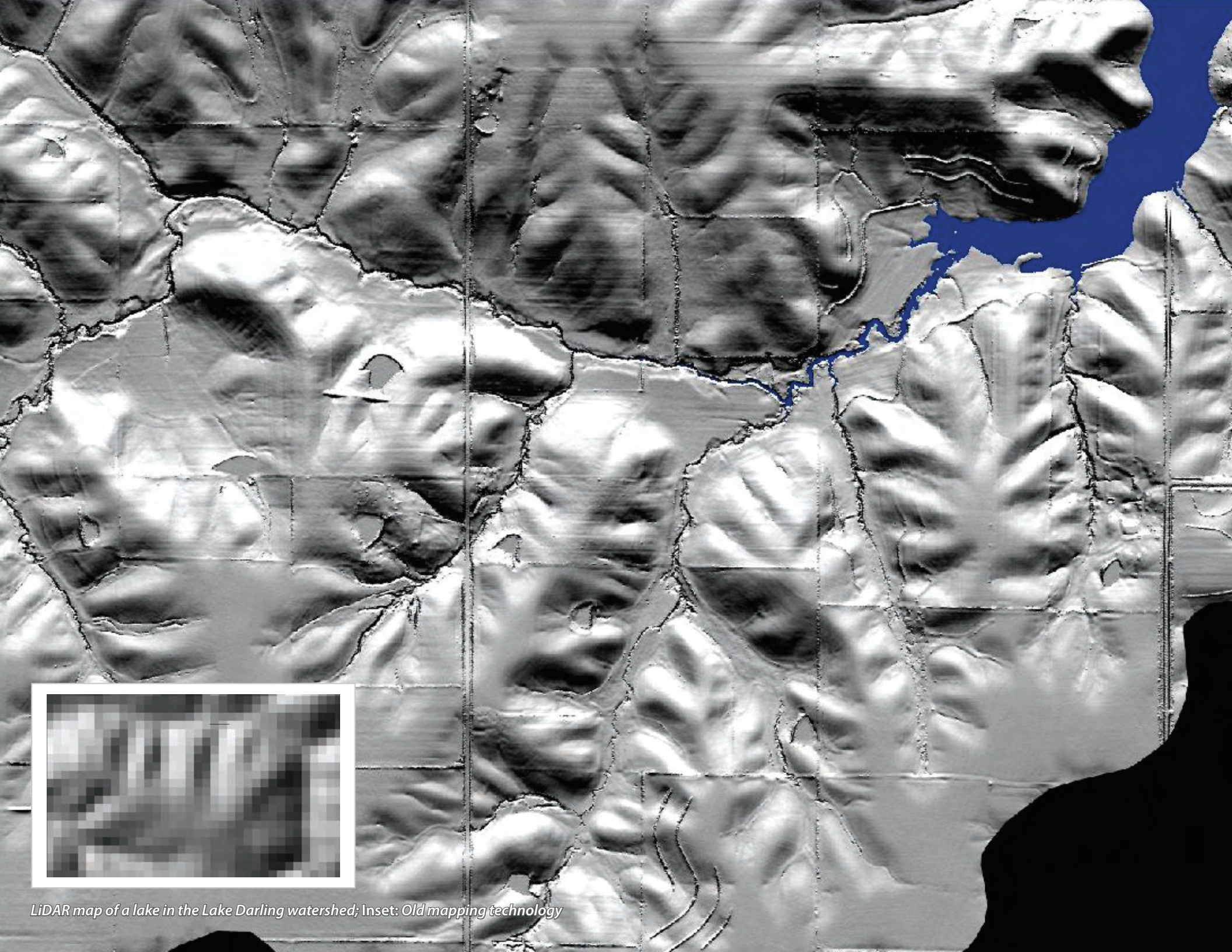
"There has just been a tremendous amount of enthusiasm from everyone," said DNR Environmental Specialist Julie Sievers. "They are the whole reason this project continues." Storm Lake citizens work for the common good of the lake by leading local urban watershed projects and using conservation practices, like rain gardens, on their own properties to reduce pollutants reaching the lake. The local watershed coordinator, Amy Johnson of the Storm Lake Water Quality Project, works with both agricultural and urban landowners to reduce pollutants getting into the water. Lalone said locals realize their own actions make a difference.

As the community helps improve water quality, the lake and city are proving themselves as outdoor destinations. Summer 2007 welcomed a new public beach, playground, lighthouse and renovated golf course, plus King's Pointe Waterpark Resort. The resort cost $40 million and took two years to build, but according to project manager Mike Wilson, 108,000 people have visited the outdoor waterpark since its opening, with 60 percent of those people coming from outside Buena Vista County. "We're just beginning to see the economic impact, but we know we're bringing in a lot of tourism," said Wilson. "We hear good reports from retail stores and restaurants, so everyone is benefitting. Right now, Storm Lake has a lot going for it."

Mike Wilson, Julie Sievers and Gary Lalone work for a cleaner Storm Lake, Clay Smith

Project partners:

- Iowa DNR
- IDALS-DSC
- USDA-NRCS
- Buena Vista County
- Buena Vista SWCD
- Buena Vista Garden Club
- Buena Vista University
- Cities of Storm Lake, Lakeside, Alta
- Ducks Unlimited
- EPA
- ISU and ISU Extension
- Lake Improvement Commission
- Lake Preservation Association
- Pheasants Forever
- Area School Districts
- Trees Forever
- USDA FSA
- USDA RC&D
- U.S. Fish and Wildlife Service
- Water For Iowans
- WIRB



LiDAR map of a lake in the Lake Darling watershed; Inset: *Old mapping technology*

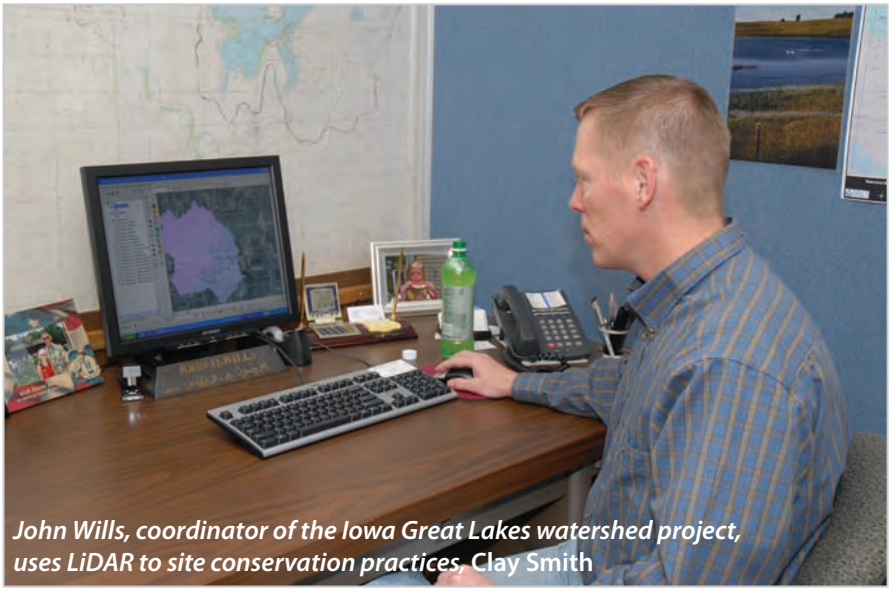
Improvement with laser accuracy

Thanks to LiDAR, watershed projects just got a whole lot easier. Watershed specialists are discovering the many benefits of using this new technology for more difficult tasks, such as assessing the watershed and identifying gullies in heavily vegetated areas.

Although most commonly used for elevation mapping, LiDAR, or Light Detection and Ranging, is a great tool for defining watersheds. LiDAR helps determine what types of conservation practices should be used and where to place them. Additionally, when watershed project staff build these conservation structures, LiDAR helps plan, estimate and provide design information. This saves a large amount of time and money for those who would otherwise have to survey the land on foot.

"The old technology we used just looks like a bunch of blurry squares. LiDAR is approximately one thousand times more accurate and has much more detail," said Bill Ehm, DNR water policy coordinator. A laser beam is shot down from a plane or helicopter to the ground, and the time it takes for the beam to hit the ground and come back determines the elevation of that area.

Statewide, LiDAR has been an effective tool for watershed projects at Lake Darling and the Iowa Great Lakes. According to DNR Fisheries Biologist Mike Hawkins, project staff mapped 90,000 acres of the Great Lakes area with LiDAR technology. It was used for preliminary and engineering design, as well as urban and agricultural watershed modeling to identify the rate of water and sediment erosion. Along with time and money saved, Hawkins feels curiosity surrounding the LiDAR process brought more public attention to the importance of good water quality.



John Wills, coordinator of the Iowa Great Lakes watershed project, uses LiDAR to site conservation practices. Clay Smith

John Wills, coordinator for the Great Lakes watershed project, and his team installed 85 low-impact development structures by using LiDAR survey data. "We started everything in June, and there's no way we would've been done by now if it weren't for LiDAR," he said.

"Even though we're all really excited about it, it's still in its infancy in terms of how to use it," said Chris Ensminger, with the DNR's Geographic Information Section, noting not all Iowa counties have been mapped yet. "We're listing its great uses today, but five years from now we may realize we totally overlooked something. I have a feeling it'll be headed in a direction we didn't even know existed."

Project partners:

Iowa DNR
DOT
IDALS-DSC
USDA-NRCS
U.S. Geological Survey

South Fork Maquoketa River, Delaware County, Clay Smith

Working towards continued success

With new tools, approaches and resources for 2009 from the DNR and its partners, Iowans can create their own success stories.

In 2009, the DNR will begin working with local watershed groups to develop long-term strategies to improve their local streams, rivers and lakes.

Using assessment data from the watershed, the DNR will help groups create watershed management plans (WMPs) that lay out strategies to restore or protect water quality within the watershed.

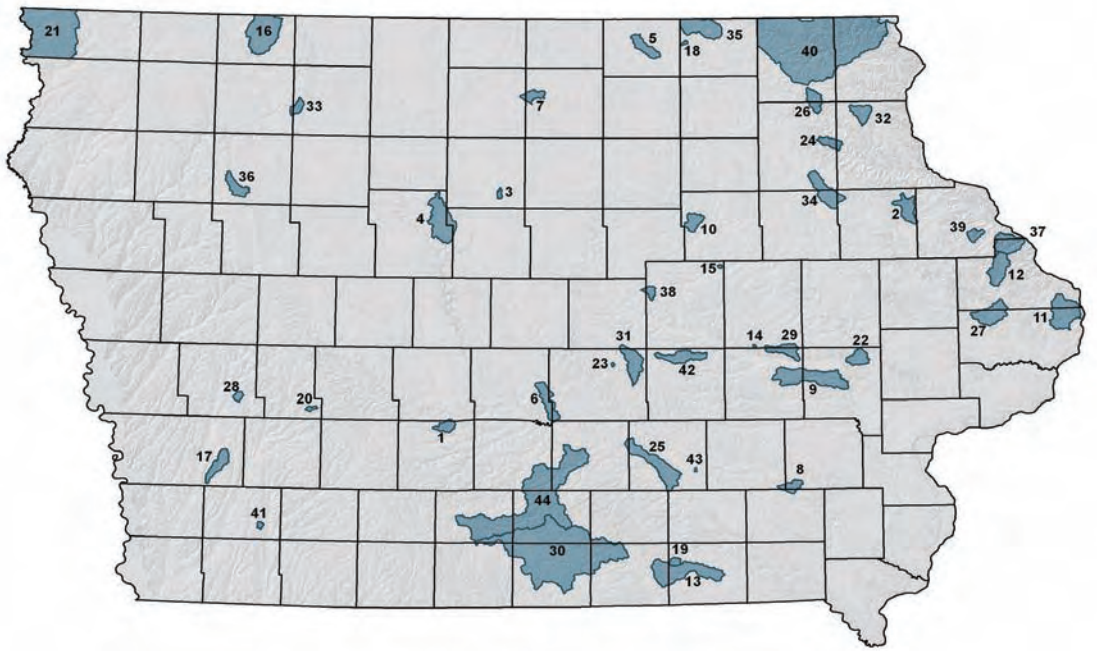
Local watershed groups for Rathbun Lake and Carter Lake have already seen what a WMP can do to organize and focus a project, secure funding and make actual water quality improvements. Now, other Iowa groups can share in that success.

The DNR Watershed Improvement program, along with its partner agencies, the Iowa Department of Agriculture and Land Stewardship—Division of Soil Conservation and the USDA Natural Resources Conservation Service, will continue to work with groups interested in improving their local river, stream or lake.

The partners can give guidance on starting a watershed effort, provide funding, and give technical assistance, such as assessing watersheds to identify problem areas and pinpoint sources of water quality problems in rural and urban areas.

As we enter 2009, the DNR Watershed Improvement Program is working on the next round of successes and looks forward to helping Iowans create new ones.

2008 DNR watershed projects



1. Badger Creek Lake
2. Bear Creek
3. Big Wall Lake
4. Brushy Creek Lake
5. Burr Oak/Turtle Creek
6. Camp Creek
7. Clear Lake
8. Lake Darling
9. Deer Creek and North Branch Clear Creek
10. Dry Run Creek
11. Elk River
12. Farmers Creek
13. Fox River
14. Hannen Lake
15. Hickory Hills Lake
16. Iowa's Great Lakes
17. Jordan Creek
18. Lake Hendricks
19. Lake Wapello
20. Littlefield Lake
21. Lyon County
22. Macbride Lake
23. Mariposa Lake
24. Mink Creek
25. Muchakinock Creek
26. Nutting Creek
27. Prairie Creek
28. Prairie Rose Lake
29. Price Creek
30. Rathbun Lake
31. Rock Creek Lake
32. Silver Creek
33. Silver Lake
34. South Fork Maquoketa River
35. Staff-Beaver Creeks
36. Storm Lake
37. Tete Des Morts
38. Union Grove Lake
39. Upper Catfish Creek
40. Upper Iowa River
41. Viking Lake
42. Walnut Creek
43. White Oak Lake
44. Upper Whitebreast Creek

For more information about DNR Watershed Improvement: Steve Hopkins at (515) 281-6402 or Stephen.Hopkins@dnr.iowa.gov

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Kayaking, Clay Smith

Iowa Department of Natural Resources

Leading Iowans in caring for our natural resources

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clean water starts with you.

IOWA DNR WATERSHED IMPROVEMENT